

Experimental Leading and Coincident Indexes for the Stone, Clay, Glass, and Concrete Products Industry

March 2000

This report analyzes and explains the USGS's monthly leading and coincident indexes for the stone, clay, glass, and concrete products industry (SIC 32). This manufacturing industry processes industrial minerals, minerals that are neither metals nor fuels, into useful products. More than 50 percent of the total value of these products is shipped to the highly cyclical construction industry. The indexes have been computed for each month back to 1948 and are available on the World Wide Web at: <http://minerals.usgs.gov/minerals/pubs/imii/scghist.txt>

Analysis

The stone, clay, glass, and concrete products leading index dropped 3.1% in February to 176.4 from a revised 182.0 in January, and its 6-month smoothed growth rate, a compound annual rate that measures the near-term trend, plummeted to -6.0% from a revised -0.5%. A growth rate below -1.0% is usually a signal of a decline in future industry activity, while a growth rate above +1.0% usually indicates an increase in future activity.¹ The leading index has been declining since last July, and its growth rate is the lowest it has been since the 1990-91 recession. The growth rate is clearly signaling a downturn in activity for the stone, clay, glass, and concrete products industry.

All four of the leading index components decreased in February. The S&P stock price index for building materials companies fell for the fifth straight month, contributing -1.8 percentage points to the decrease in the leading index. The second largest negative contribution came from the index of permits issued for new U.S. housing, -0.7 percentage points. The yield spread between two interest rates, the Federal Reserve's Federal funds rate and the U.S. 10-year Treasury bond rate contributed -0.4 percentage points, and the average workweek for production workers in the industry contributed -0.3 percentage points to the overall decline in the leading index (table 2).

¹The 6-month smoothed growth rate is a compound annual rate based on the ratio of the current month's index to its average level during the preceding 12 months.

Current industry activity, as measured by the coincident index, was down 0.7 % in February to 152.4 from a revised 153.5 in January (table 1), and its annualized growth rate slowed to 1.8% from a revised 3.5% in January.

Explanation

The USGS uses the same methodology for the stone, clay, glass, and concrete products indexes that it uses for the metal manufacturing indexes in the *Metal Industry Indicators*. This methodology consists of constructing and tracking, each month, two composite indexes of diverse economic indicators. The composite leading index for stone, clay, glass, and concrete products signals, several months in advance, major changes in current economic activity as measured by a composite coincident index. The construction of the leading and coincident indexes follows well-established procedures for the analysis of cyclical indicators that were developed at the National Bureau of Economic Research, the U.S. Department of Commerce, and the Center for International Business Cycle Research.

Coincident indicators

The indicators selected to represent current activity in the coincident index for the stone, clay, glass, and concrete products industry are industrial production, the value of shipments in 1982 dollars, and total employee hours worked. The composite index of coincident indicators for SIC 32 is itself a leading indicator of the U.S. economy. It leads the U.S. business cycle an average of 3.6 months at both peaks (end of an economic expansion) and troughs (end of an economic downturn), and it leads at 67% of the turning points from 1948 onward.

Leading indicators

Leading indicators represent various economic activities that can point to near-term changes in industry activity. The following four indicators proved to be reliable at signaling major changes in economic activity in the stone, clay, glass, and concrete products industry: 1) average weekly hours worked in the stone, clay, glass, and concrete products industry; 2) an index of new private housing units authorized by building permits in the United States; 3) the Standard & Poor's stock price index for

building materials companies; and 4) the yield spread between the Federal funds interest rate and the 10-year Treasury bond interest rate. The composite leading index constructed from these indicators turned before the coincident index at every trough and at 88% of the peaks. Although the leading index did not lead the coincident index at every peak, the average leads at troughs and peaks were 7.3 and 8.4 months respectively, for an overall lead of 7.8 months.

This report was produced at the U.S. Geological Survey by the Minerals Information Team. For more information about these

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The USGS also produces *Mineral Industry Surveys* (MIS) for virtually all industrial minerals important to the U.S. economy. These include MISs for Cement, Clays, Crushed Stone, Dimension Stone, and Construction Sand and Gravel. Information on how to access these reports is available on the World Wide Web at: <http://minerals.usgs.gov/minerals/pubs>

Tables and charts follow.

Table 1.
The Stone, Clay, Glass, and Concrete Products Industry Indexes and Growth Rates

| | Leading Index | | Coincident Index | |
|-------------|----------------------|--------------------|-------------------------|--------------------|
| | (1977 = 100) | Growth Rate | (1977 = 100) | Growth Rate |
| 1999 | | | | |
| March | 178.5 | -1.5 | 149.0 | 3.2 |
| April | 180.2 | 0.2 | 148.4 | 1.9 |
| May | 183.4 | 3.4 | 149.1 | 2.2 |
| June | 184.4 | 4.2 | 149.3 | 2.0 |
| July | 184.7 | 4.0 | 150.8 | 3.3 |
| August | 183.9 | 2.8 | 151.3 | 3.4 |
| September | 183.2 | 1.7 | 151.5 | 2.9 |
| October | 182.6 | 0.4 | 151.7 | 2.5r |
| November | 183.1 | 0.6 | 153.8r | 4.7r |
| December | 179.8r | -2.8r | 152.6 | 2.6 |
| 2000 | | | | |
| January | 182.0r | -0.5r | 153.5r | 3.5r |
| February | 176.4 | -6.0 | 152.4 | 1.8 |

r: Revised

Note: Growth rates are expressed as compound annual rates based on the ratio of the current month's index to the average index during the preceding 12 months.

Table 2.
The Contribution of Each Stone, Clay, Glass, and Concrete Products Index Component to the Percent Change in the Index from the Previous Month

| Leading Index | January | February |
|--|----------------|-----------------|
| 1. Average weekly hours, stone, clay, glass, and concrete products (SIC 32) | 0.7r | -0.3 |
| 2. Index of new private housing units authorized by permits | 0.8 | -0.7 |
| 3. S&P stock price index, building materials companies | -0.6 | -1.8 |
| 4. Spread between the U.S. 10-year Treasury Note and the Federal Funds rate | 0.2 | -0.4 |
| Trend adjustment | 0.1 | 0.1 |
| Percent change (except for rounding differences) | 1.2r | -3.1 |
| Coincident Index | | |
| 1. Industrial production index, stone, clay, glass, and concrete products (SIC 32) | 0.0 | 0.1 |
| 2. Total employee hours, stone, clay, glass, and concrete products (SIC32) | 0.7r | -0.9 |
| 3. Shipments of stone, clay, glass, and concrete products (SIC 32) | -0.2 | NA |
| Trend adjustment | 0.1 | 0.1 |
| Percent change (except for rounding differences) | 0.6r | -0.7 |

Sources: Leading: 1, Bureau of Labor Statistics; 2, Bureau of the Census and U.S. Geological Survey; 3, Standard & Poor's; 4, Federal Reserve Board, Conference Board, and U.S. Geological Survey. Coincident: 1, Federal Reserve Board; 2, Bureau of Labor Statistics and U.S. Geological Survey; 3, Bureau of the Census and U.S. Geological Survey. All series are seasonally adjusted, except 3 of the leading index.

NA: Not available r: revised

Chart 1.

**STONE, CLAY, GLASS, AND CONCRETE PRODUCTS:
LEADING AND COINCIDENT INDEXES, 1978-2000**

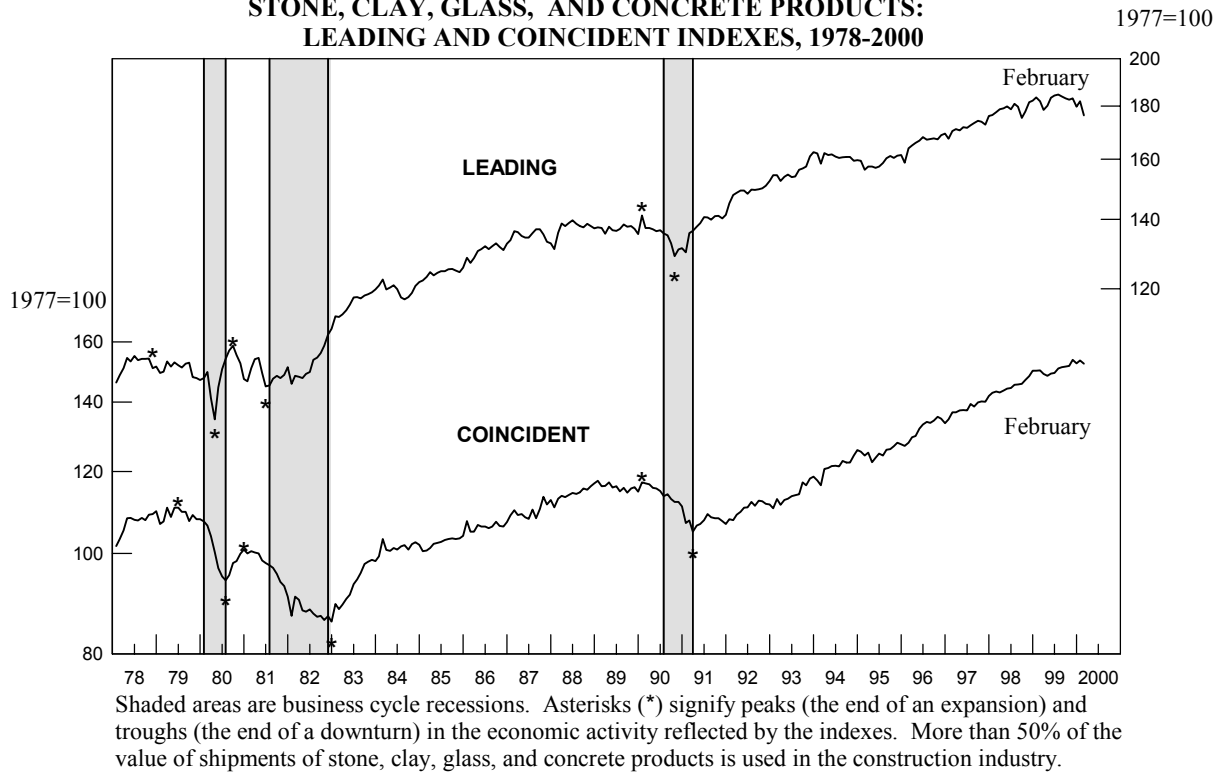


Chart 2.

**STONE, CLAY, GLASS, AND CONCRETE PRODUCTS:
LEADING AND COINCIDENT GROWTH RATES, 1978-2000**

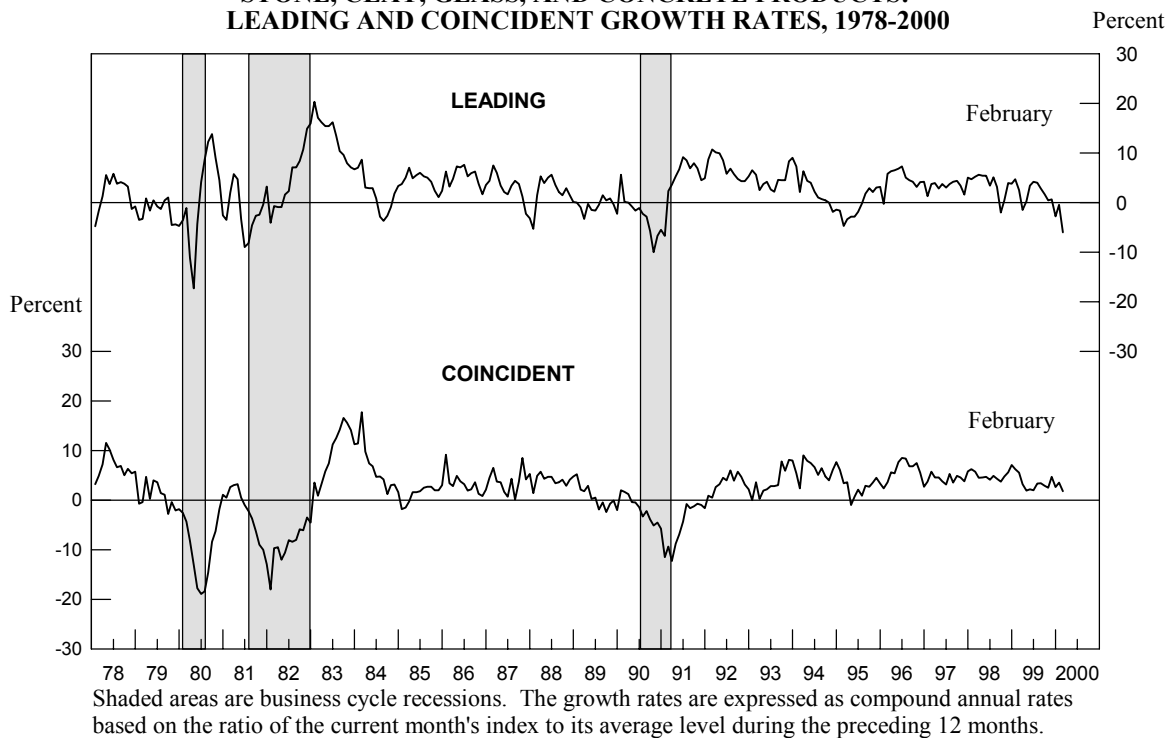
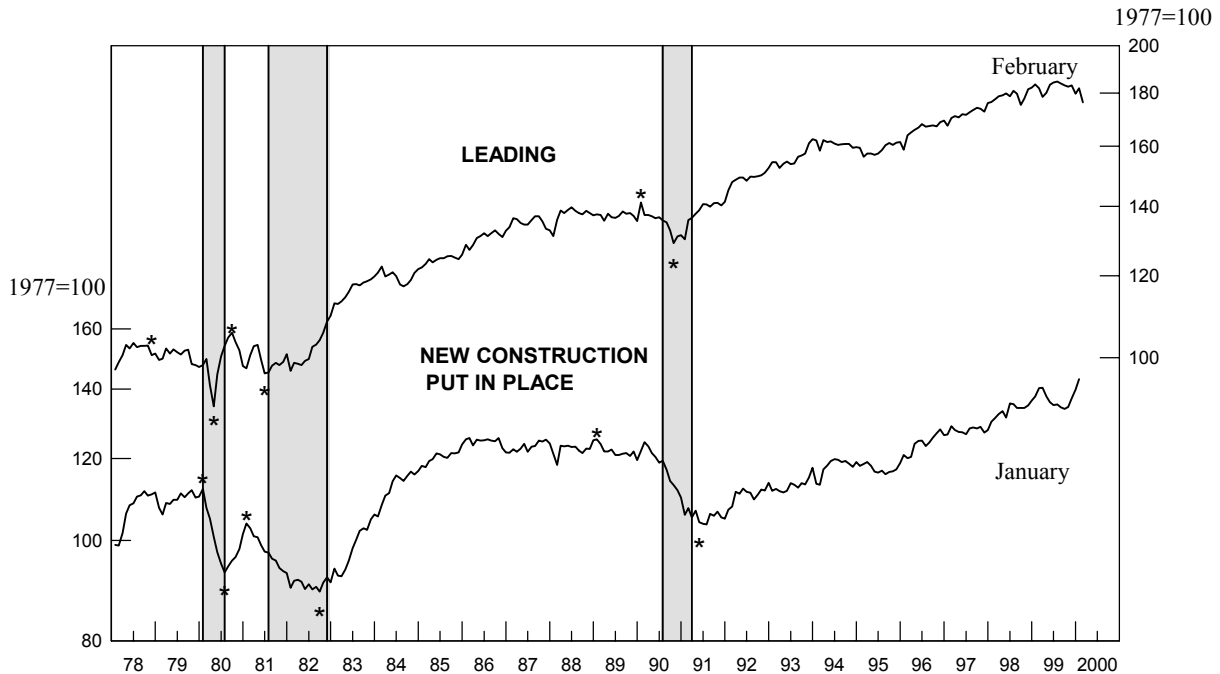


Chart 3.

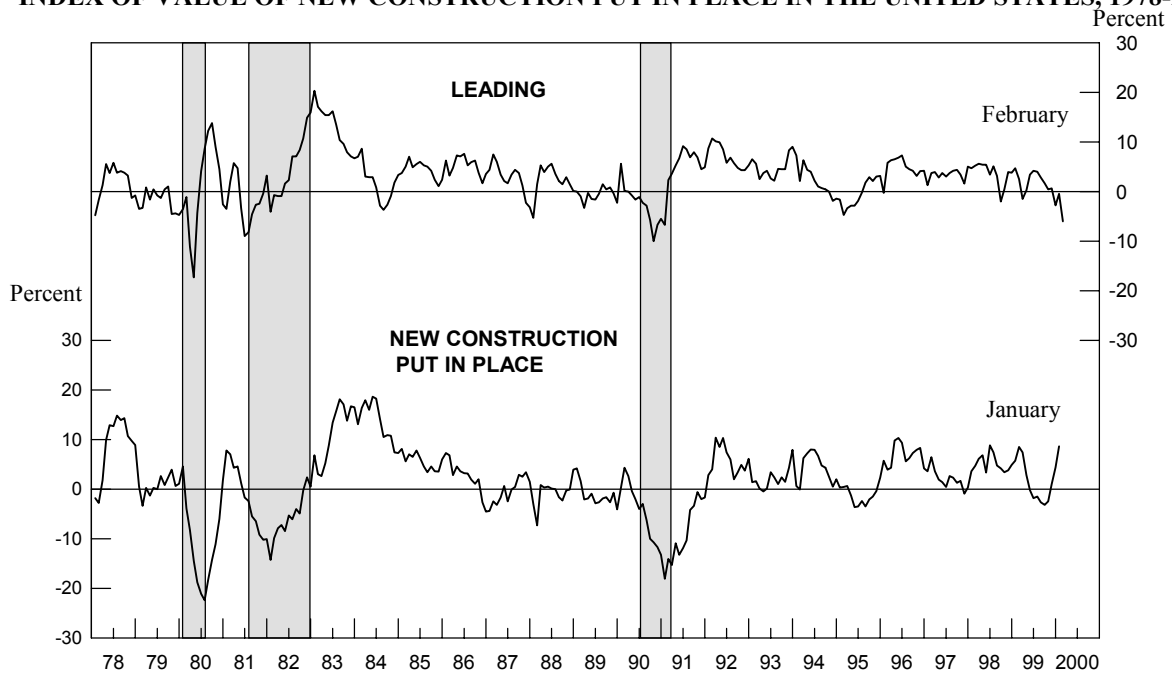
**STONE, CLAY, GLASS, AND CONCRETE PRODUCTS LEADING INDEX and
INDEX OF VALUE OF NEW CONSTRUCTION PUT IN PLACE IN THE UNITED STATES, 1978-2000**



Shaded areas are business cycle recessions. Asterisks (*) signify peaks (the end of an expansion) and troughs (the end of a downturn) in the economic activity reflected by the indexes. More than 50% of the value of shipments of stone, clay, glass, and concrete products is used in new construction.
Sources: U.S. Geological Survey and Bureau of the Census

Chart 4.

**GROWTH RATES
STONE, CLAY, GLASS, AND CONCRETE PRODUCTS LEADING INDEX and
INDEX OF VALUE OF NEW CONSTRUCTION PUT IN PLACE IN THE UNITED STATES, 1978-2000**



Shaded areas are business cycle recessions. The growth rates are expressed as compound annual rates based on the ratio of the current month's index to its average level during the preceding 12 months.